

**CALIFORNIA WILDLIFE HABITAT RELATIONSHIPS SYSTEM**  
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M111 San Joaquin Kangaroo Rat *Dipodomys nitratoideus*  
Family: Heteromyidae Order: Rodentia Class: Mammalia

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#### DISTRIBUTION, ABUNDANCE, AND SEASONALITY

Permanent resident of alkali desert scrub habitat and herbaceous habitats with scattered shrubs. Abundance data not available. Currently, found primarily in the southwestern San Joaquin Valley at elevations up to 550 m (1800 ft). Two of the three subspecies, Fresno kangaroo rat (*D. n. exilis*), and Tipton kangaroo rat (*D. n. nitratoideus*) are endangered. *D. nitratoideus* is restricted to a few remaining alkali sink areas of marginal habitat. Its total remaining habitat area was estimated to be approximately 2023 ha (5000 ac) in 1980. Rapid urbanization, and agricultural developments associated with the State Water Project have extirpated this species from much of its historical range (California Dept. Fish and Game 1980). In 1985, *D. n. nitratoideus* was known to occur in only 3.7% of its historic range (Williams and Germano, 1992). The most dramatic habitat losses have been experienced by *D. n. exilis*.

#### SPECIFIC HABITAT REQUIREMENTS

**Feeding:** Fresno kangaroo rats forage on open ground and under shrubs. They eat mainly seeds of annual forbs and grasses (e.g., brome grasses and wild oats). They also consume some green vegetation. Food is collected and stored temporarily in cheek pouches. Some food later cached in small holes, dug in sides of burrows (Culbertson 1946).

**Cover:** Fresno kangaroo rats use nearly level terrain with sandy loam soils for excavation of burrows. Herbaceous vegetation with scattered shrubs is common above-ground cover. Culbertson (1946) described burrow systems as covering a surface area from about 2.1 x 2.1 m (7 x 7 ft) to 3.7 x 3.7 m (12 x 12 ft). Some burrow systems included short dead-end tunnels, apparently used to escape predators.

**Reproduction:** Nests are in burrows excavated in sandy loam soils.

**Water:** Drinking water apparently is not required (Culbertson 1946).

**Pattern:** Little information available. Gently undulating to level terrain with sandy loam soils, mildly to moderately alkaline, and herbaceous vegetation with scattered shrubs, appears to be suitable habitat.

#### SPECIES LIFE HISTORY

**Activity Patterns:** Yearlong nocturnal activity.

**Seasonal Movements/Migration:** Non-migratory.

Home Range: Little data found. Estimated densities of *D. n. nitratooides* at Pixley National Wildlife Refuge ranged from 3.0 +/- 0.9 to 3.8 +/- 1.6/ha (Williams and Germano 1991).

Territory: Little data found. The area immediately adjacent to the burrow, where surface caches of seeds are stored, may be defended, as is common in kangaroo rats.

Reproduction: Breeding occurs from December through September (Hawbecker 1951, Eisenberg and Isaac 1963). Average litter size 2-3, range from 1-3 (Eisenberg and Isaac 1963). Young born and reared in burrows.

Niche: *D. nitratooides* is closely related to *D. merriami* (Ingles 1965), and probably similar in habits. It is sympatric in portions of its range with at least 7 other seed-eating heteromyid rodents (i.e., *D. ingens*, *D. heermanni*, *D. elephantinus*, *Chaetodipus californicus*, *Perognathus inornatus*, *P. longimembris*, and probably *P. alticola*). Potential competition for food and space may occur between *D. nitratooides* and these species. Seed-eating insects and birds also may compete for food. Badgers, kit foxes, owls, and snakes probably prey on these kangaroo rats.

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